# CONSTRUCTION DEFECTS AND STIGMA

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## Abstract

Properties suffering from construction defects exhibit a diminution in value resulting from both the actual cost to cure as well as the residual stigma losses. In the unremediated state, the sum of these should equal the diminution in market value, while post-remediation there is significant evidence of continued stigma. Proper estimation of these losses is complicated by two factors. First, direct estimation of remediation costs is often problematic and common appraisal methodology does not provide for simple direct estimation of stigma losses, particularly for residences. Secondly, indirect methods (i.e. – sales comparison) typically fail due to disequilibrium problems or lack of data. This study illustrates the problem and suggests methods which have been used in recent cases that transcend both the legal and appraisal problems to result in a more compelling solution for valuation.

## Introduction

While stigma is well defined and well established in the valuation literature, it's application for valuing properties affected by construction defects is still a matter of development. The need for

promulgation of useful valuation methodology is particularly acute in the face of recent conflicting court rulings in various jurisdictions.

The purpose of this study is three-fold:

- Review the salient literature on stigma, with a particular emphasis on construction defects matters.
- Show the how stigma arises in construction defects cases, both pre- and post-remediation.
- Present an alternative methodologies, within the rubric of traditional valuation approaches, for estimating stigma damages in construction defects cases.

Hopefully, this will aid in bridging the disconnect between property value realities and the application of those realities in the courtroom.

**Stigma and Real Estate Value**

The current theory and methodology for dealing with stigma as a quantitative concept in real estate economics traces its roots to Patchin (1991)[1] and Mundy (1992)[2]. This latter study differentiated between the costs to cure and stigma. Cost-to-cure is an out-of-pocket expense born either by the property owner or some other responsible party, while the stigma is the property value diminution over and above any out-of-pocket remediation expenses.

Kilpatrick (1998) outlines the quantitative model by which the value of income producing property is reduced by stigma effects, which are manifested via increases in market driven capitalization rates[3]. In his model, the stigma losses actually overwhelm the other three factors as a component of value diminution, and he concludes that, under many circumstances, the stigma impacts are actually the greater portion of value losses to property owners.

**Stigma and Construction Defects**

In this context, stigma can be thought of as the residual or continued loss in value after out-of-pocket remediation expenditures have been made. In the case of structural defects, it would be the residual loss in value after attempts have been made at repair or replacement. Adverse market reactions to such defective property can be driven by fear of reoccurrence, uncertainty over future financing and liability, changes in or distrust or regulatory standards which may reclassify previously damaged properties as "remediated", increased future maintenance costs, or other uncertainties[4].

In recent construction defects litigation cases, non-stakeholders were interviewed to determine their attitudes toward purchasing dwellings which had previously been physically damaged as a result of construction defects but later repaired[5]. Non-stakeholders consistently indicated both a substantial increase in marketing time as well as a substantial discount from unimpaired value. Respondents to the surveys questioned the credibility of the repair work, citing:

- Doubts that the repair work was completed in a workman-like manner
- Doubts that the repairs "got it all"
- Questions about the quality of the replacement materials
- Fear that additional damage (such as rotten structural components) had not yet been discovered.

Hence, stigma discounts were the result of significant questions on the part of the buying public that the repaired components were, indeed, repaired to the levels expected of undamaged structures.

Sanders (1996), writing on the subject of site specific impairments, also finds that post-remediation stigma can be a significant factor[6]:

> *This is particularly true of latent defects associated with geotechnical issues and structural problems, because a typical layperson does not understand sophisticated engineering, and cannot in most cases visibly examine repairs to determine their adequacy and probability of reoccurrence.*

In several recent cases, permanent, incurable physical depreciation caused by construction defects affected stigma, whether pre- or post-remediation. In the pre-remediation state, the incurable physical depreciation may exceed 50% or more of the otherwise unimpaired value, in

addition to the cost-to-cure, nuisance, trespass, and other costs borne by the property owner and manifested as a diminution in value.

**The Real Estate Appraisal Problem**

The laws governing construction defects may vary from state to state, but the evidentiary standards governing appraisal expert testimony must be uniform throughout the U.S. as a manifestation of the promulgation, since the early 1990's, of the Uniform Standards of Professional Appraisal Practice[7]. Thus, the challenge for attorneys and valuation experts is to determine a valuation methodology which fits in all construction defects cases and which is consistent with both appraisal methodology and the legal doctrines in the various states.

This is further compounded by the need to reconcile the economic reality of real estate value diminution as a result of a construction defect, post-remediation, to the various state laws which either do not recognize stigma or define it a cumbersome way. Of course, pre-remediation, stigma is often held to be only a manifestation of the uncertainty as to whether or not the problem will be remediated. Defendants are able to co-opt this argument with the simple expedient of providing assurances that the physical manifestation will be resolved. Thus, they hold that post-remediation, there should be no stigma.

Further, valuation analysts often do their defense clients a disservice by incorrectly applying traditional valuation approaches to what is clearly a non-traditional problem. Often – indeed,

almost always – it is possible to find a limited number of transactions which occur at "unimpaired market value". These transactions are analogous to what stock market analysts call "noise traders". They almost always occur as a result of a violation of one or more of the explicit assumptions contained in the salient definition of market value. Most often, the buyers (and sometimes, even, the sellers) are unaware of the full extent of the construction defects. There are frequently other violations of the explicit assumptions which that these transactions to be non-representative of the actual equilibrium value of the defective property.

Academic research into this phenomenon has consistently called into question the usefulness of traditional techniques in problems such as this. For example, Chalmers and Beatty (1994)[8] discuss the requirement for "full information" (ne: full knowledge) dictated by the traditional definition of market value. However, as Simons (2002) clearly notes, the transactions data available in the market will often not reflect market values at equilibrium under the assumptions inherent in the definition of value[9]. Thus, as shown by Simons (2002), Allen and Austin (2001)[10], McLean and Mundy (1999[11], 1998[12]), Simons, Bowen, and Sementelli (1997[13], 1999[14]), and others in the valuation literature, alternative techniques and methods are appropriate and widely used when efficient transactions data is not available.

**Incurable Physical Depreciation**

One method which has proven useful in recent cases recognizes than, in an unimpaired state, buyers purchase structures with the anticipation of a certain useful economic life[15].

For example, the economic life of a typical condominium structure is anticipated to be 50 years[16]. In one recent case involving such a condominium structure, reliable architectural and engineering experts were able to determine that the defects, even after remediated, caused incurable physical depreciation to the remaining structure which reduced the economic life of the improvements to approximately 20 years as of the time of construction, assuming the defects were not repaired and no extraordinary maintenance was undertaken[17,]. As of the time of that determination (when the construction defects were discovered) the structures were about 5 years old; meaning that these units had about 15 years of remaining economic life.

To determine the value in this "impaired" state, it is first necessary to estimate the economic value of the utility of living in the subject. A reasonable proxy for that is the cost of a mortgage payment, taxes, insurance, and homeowners dues. Assuming an 8% interest rate on a 90% Loan-to-Value mortgage for 30 years, and based on a median price of $192,000, the principal and interest payment for one of these condominiums was $1,267.95. To this, we added $400 per month for property taxes, homeowners insurance, and association dues. This totals $1,667.95 per month, or $21,215.34 per year.

In order to estimate the current Market Value of the subject property given the depreciation issue, we must calculate the Net Present Value of the utility of the remaining useful life of the property. The first step is to estimate the future value of the reversion. In this case, after the improvements become uninhabitable in approximately 15 years, the only remaining value would be land. This land is then the reversionary value.

We estimated the current land value at 12% of the entire value of an average unit, or approximately $23,000. In 15 years, when the property will be required to be torn down, the land value will have increased. We estimated an overall appreciation in the land at 3% per year, which indicated a value 15 years hence of approximately $36,000, rounded. This is the reversionary value[18].

The next step is to estimate the rate of depreciation, given an unaffected Market Value per unit today of $192,000 and a reversionary value of $36,000 in 15 years. The answer is a negative 10.55% annually[19].

The next step is to depreciate the economic utility of living in the subject for each year. As shown above, the economic utility is the cost of buying or renting a unit, or $21,215.34 per year. This annual utility value is then depreciated at a rate of negative 10.55% to determine the net economic value of the utility for each of the remaining years of the property:

$$21{,}215.34 * (1 - 0.1055) = 18{,}977.12$$

This is then discounted back to the present. However, we used a somewhat higher than normal discount rate, of say 18% (rather than a more typical 13%) to account for the expected higher than average deterioration of the subject. Also, due to the construction defects, a higher level of

risk is anticipated. The present value of this utility is $96,500, rounded. This amounts to approximately a 50% reduction in value from the otherwise unimpaired value.

This means that if the subject property will be uninhabitable in 15 years and the only value remaining will be the land value, then a knowledgeable person should not pay more than $96,500 per unit if purchasing it today, or approximately 50% of the otherwise unimpaired value. This reflects the current value of the anticipated future benefits of living in the subject for 15 years and having only the unit owner's pro-rata share of the land value remaining.

**Conclusions**

In construction defects cases, the use of recent sales as indicators of market value is a simple approach but generally inappropriate. Contemporary sales of affected properties are rarely indicative of true market value because explicit requirements of the definition of market value are violated. Thus, to determine actual impaired market value, it is necessary to use more advanced quantitative techniques. Fortunately, appraisal methodology provides for such techniques, which more properly account for actual physical deterioration of the structure caused by construction defects.

[1] Patchin, Peter, "Contaminated Properties – Stigma Revisited", Appraisal Journal, April, 1991, pgs. 162-172.
[2] Mundy, Bill, "Stigma and Values", Appraisal Journal, January, 1992, pgs. 7-13.
[3] Kilpatrick, John, "Appraisal of Contaminated Property", CAREER News (The University of South Carolina, Darla Moore School of Business), August, 1998.

[4] Kilpatrick, John, Doug Brown, Ron Rogers, "The Performance of Exterior Insulation Finish Systems and Property Value", Appraisal journal, January, 1999, 83-88.
[5] Non-stakeholders consisted of contemporaneous buyers of comparable properties (up-scale condominiums) in the same neighborhood. Construction defects included defective and leaking windows, leaking roofs due to faulty workmanship, improperly installed hot water heaters, defective siding material, other miscellaneous improper workmanship, and miscellaneous wood rot.
[6] Sanders, Micheal, "Post-Repair Diminution in Value from Geotechnical Problems", Appraisal Journal, January, 1996.
[7] The Uniform Standards have been adopted as a matter of law or regulation in all states.
[8] Chalmers, James A. and Jeffre Beatty, "Environmental Hazards Devastate Property Values", Real Estate Valuation Spring, 1994, pg 22-28,
[9] Simons, Robert A., Estimating Proximate Property Damage from PCB Contamination in a Rural Market: A Multiple Technique Approach", Appraisal Journal, October, 2002, 388-400.
[10] Allen, Marcus and Grant Austin, "The Role of Formal Survey Research Methods in the Appraisal Body of Knowledge", The Appraisal Journal, October, 2001, 394-399.
[11] McLean, David, and Bill Mundy, "Addition of Contingent Valuation and Conjoint Analysis to the Required Body of Knowledge for the Estimation of Environmental Damages to Real Property", Journal of Real Estate Practice and Education, 1999, 1-19.
[12] Mundy, Bill, and David McLean, "Using the Contingent Valuation Approach for Natural Resource and Environmental Damage Applications", The Appraisal Journal, July, 1998, 290-297.
[13] Simons, Robert, William Bowen, and Arthur Sementelli, "The Effects of Leaking Underground Storage Tanks on Residential Sales Price", Journal of Real Estate Research, 1997, 29-43.
[14] Simons, Robert, William Bowen, and Arthur Sementelli, "The Price and Liquidity Effects of UST Leaks from Gas Stations on Adjacent Contaminated Property", The Appraisal Journal April, 1999, 186-194.
[15] "Economic Life" is the period of time over which the improvements will contribute to property value. See The Appraisal of Real Estate 12rh (Chicago: The Appraisal Institute, 2002) Note that the author of this article is a member of the Publications Review Panel of the Appraisal Institute, which publishes this authoritative text.
[16] See, for example, Marshall and Swift for a good quality wood frame (Class D) town and row houses. Ref: The Marshall and Swift Life Expectancy guidelines, Sections 12 & 42.
[17] Marshall and Swift discuss extraordinary maintenance under the rubric of "Life Cycle", Section 97. To extend the life cycle beyond the norm typically requires extraordinary items, such as wholesale replacement of siding, windows, and roofs; remodeling kitchens and baths; and upgrading plumbing and electrical systems. However, the end of a life cycle is often characterized by neighborhood cycles, in which case even this extraordinary maintenance is not called for in the absence of neighborhood revitalization.
[18] Note that this reversionary value assumes that all of the entitlements necessary for reconstruction will be available 15 years hence. Given reported problems with entitlements on the Samammish Plateau, this may be problematic. However, for purposes of this example, we have made the hypothetical assumption that these entitlements will be available.
[19] In other words, $192,000 depreciated at 10.55% annually for 15 years equals $36,000.